

REMARKS

Claims 1 through 9 and 11 are pending in this Application. Applicant acknowledges, with appreciation, the Examiner's indication that claim 5 contains allowable subject matter. Claim 5 has been recast in independent form and is believed to be in condition for allowance.

Applicant submits that the present Amendment does not generate any new matter issue, require any additional search and/or consideration. Entry of the present Amendment is respectfully solicited. It is believed that this response places this application in condition for allowance.

Claims 1, 3-4, 6-8 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DiGiovanni et al. (U.S. Pat. No. 6,504,973, hereinafter "DiGiovanni") in view of Akasaka et al. (U.S. Pat. No. 6,292,288, hereinafter "Akasaka"). This rejection is respectfully traversed.

Applicants respectfully submit that the Examiner's rejection is predicated upon an apparent misunderstanding of the teachings of DiGiovanni and in view of the following comments, the rejection is not legally viable and should be withdrawn.

At page 3 of the office action, the Examiner considers Fig. 1 of DiGiovanni as disclosing a Raman amplification pump module. However, it is submitted that module 10, at Fig. 1 of DiGiovanni, is a "Raman amplified, dispersion compensating" module and includes counter-pumps 16 and co-pumps 20 as pumps. A Raman amplifier 10 in Fig. 3 of the present specification has a Raman amplification pump module 20 as a pump, that is, the Raman amplification pump module 20 is a pump for the Raman amplifier 10 (Applicants have included the reference numerals to assist the Examiner's understanding of the present claimed submitted matter and are not intended to further limit the present claims). Therefore, a Raman amplified, dispersion compensating module 10 of DiGiovanni cannot be considered a Raman amplification

pump module 20 according to the present independent claim 1. Independent claim 1 defines a Raman amplification pump module. The Raman amplification pump module outputs pump light for Raman amplification of signal light propagating through an optical waveguide path and the Raman amplification pump module does not include an optical waveguide path through which signal light propagates.

Further, the Raman amplification pump module 20 of the present application includes a nonlinear medium 26 as well as light sources 28 and 30. Although counter-pumps 16 or co-pumps 20 of DiGiovanni may include devices equivalent to light source 28 or 30, Applicants emphasize that there is no evidence of record that counter-pumps 16 or co-pumps 20 include a device equivalent to the nonlinear medium 26 therein.

Moreover, the element noted as a rectangular at the right side of element 118 in FIG. 7 of DiGiovanni cannot be considered equivalent to an optical multiplexer 32 in a Raman amplifier 10. See Fig. 3 of present specification. Rather, this rectangular shaped element of DiGiovanni should be properly compared with multiplexing module 18 in a Raman amplifier 10, as shown in Fig. 3 of present specification.

Applicants further submit that it is unclear from the Office action, whether the Examiner is relying on Fig. 1 or Fig. 7 of DiGiovanni to reject present claim 1. The Office action, at page 4, line 5 apparently relies on Fig. 1 of DiGiovanni, to reject claim 1. However, Applicants respectfully point out that elements 114, 116, and 130 relied upon by the Examiner, are elements belonging to a RADCM 100 in FIG. 7. It is submitted that even though a RADCM 10 (Fig. 1) includes a highly nonlinear fiber (HNLF), as described at col. 6, line 9, it is unclear whether the RADCM 100 of Fig. 7 includes a HNLF.

Applicants now turn to page 3 of the Office action regarding “Argument (C)”. The Examiner asserts that element 130 oscillates and tunes pump signals to different wavelengths and one or ordinary skill in the art understands that gratings, which are reflectors, are capable of oscillating light at different wavelengths. The Examiner concludes by stating that this understanding coupled with a light source, “i.e. the pumps (note 130 is Fiber Bragg Grating for pumps), results in the oscillation at two more different wavelengths.” Applicants traverse.

It is submitted that a Fiber Bragg Grating (reflector) for pumps cannot be considered a light source for emitting light. It is a reflector reflecting output light from counter-pumps 16. DiGiovanni does not disclose that counter-pumps 116 include one multi-wavelength light source according to claim 4. A proper comparison is the Raman amplification pump module compared with counter-pumps 16 or co-pumps 20 of DiGiovanni, as mentioned above. Counter-pumps 16 and co-pumps 20 are pumps which supply single or multi-wavelength pump light, that is, discrete wavelengths pump light. A Raman amplification pump module according to the present invention is modularized and supplies broadband pump light, that is, continuous wavelengths pump light.

For the reasons stated above, the foregoing rejection under 35 U.S.C. § 103 is not legally or factually viable and should be withdrawn.

Dependent claim 2 was rejected under 35 U.S.C. § 103 for obviousness predicated upon DiGiovanni in view of Akasaka and further in view of Bolshtyansky et al. (U.S. Pat. No. 6,456,426, hereinafter “Bolshtyansky”). This rejection is traversed.

Regarding the rejection on dependent claim 2, the claim requires that at least one of the light sources is a high-output laser for outputting power capable of causing optical parametric effect. A light source of the prior art that is not capable of causing an optical parametric effect,

does not meet the limitation of the present claim. Applicants submit that neither DiGiovanni/Akasaka nor Bolshtyansky, at col. 6, lines 60-65, disclose or remotely suggest a light source capable of causing optical parametric effect.

Dependent claim 9 was rejected under 35 U.S.C. § 103 for obviousness predicated upon DiGiovanni in view of Akasaka and further in view of Tsuzaki (Broadband Discrete Fiber Raman Amplifier with High Differential Gain Operating Over 1.65 μ m-band (2000)). This rejection is traversed.

With respect to the rejection of claim 9, the DCF2, element 114 in Fig. 7 of DeGiovanni, is used for amplification and not for broadening a spectrum of pump, as described above. Even if DCF2 114 has FOM similar to Tsuzaki, it is for amplification and not for broadening a spectrum of a pump light source, as taught by Tsuzaki. Thus, absent the present specification as a template, one of ordinary skill in the art would have no reason to combine the references as suggested by the Examiner.

If any independent claim (claim 1) is non-obvious under 35 U.S.C. § 103(a), then any claim depending therefrom (claims 2-4, 6-9 and 11) is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Based upon the foregoing it should be apparent that even if the applied references are combined as proposed by the Examiner, and Applicant does not agree that the requisite fact-based motivation has been established, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Applicant, therefore, submits that the imposed rejections under 35 U.S.C. § 103 for obviousness are not factually or legally viable and, hence, solicits withdrawal thereof.

It is believed that all pending claims are now in condition for allowance. Applicant therefore respectfully requests an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicant's representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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